

### **REMARKS**

Claims 3-20 are now pending in the application. Claims 1, 2, and 21 have been cancelled. Claims 3 and 14 are currently amended. No new matter has been added, as the amendments are supported by the specification, claims, and drawings as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1, 2, and 21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Leung et al. (U.S. Pub. No. 2003/0087653 A1). This rejection is respectfully traversed. Applicant has cancelled claims 1, 2, and 21. In view of the foregoing, Applicant respectfully requests withdrawal of the rejection.

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 3-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Leung (U.S. Pub. No. 2003/0087653 A1) as applied to claim 1 above, and further in view of Nakagawa et al. (U.S. Pat. No. 6,256,508 B1) and Leung (U.S. Pub. No. 2003/0078044 A1). Claims 14-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Leung 653 (and U.S. Pat. No. 5,101,501 incorporated by Leung 653) as applied to claim 1 above and further in view of Nakagawa. These rejections are respectfully traversed.

In claim 3, real-time broadcast services are broadcasted to mobile terminals through downlink special carrier frequencies. The downlink special carrier frequencies are peculiar or particular to the real-time broadcast services, and not used for bearing original services. That is, the downlink special carrier frequencies are specifically reserved for the real-time broadcast services. Therefore, the original services and the real-time broadcast services may not interfere with each other.

Leung 653 appears to disclose that when the HSBS broadcast service is deployed, the number of frequency assignments may be involved in designing a system (see Leung 653, [0048]). Leung 653 appears to disclose that “the channel structure is consistent with the cdma2000 standard wherein the Forward Supplemental Channel (F-SCH) supports data transmissions”. Channels such as F-SCHs and F-FCHs are formerly used for transmitting original services, such as speech communication, data transmission, wireless internet, and video on command in a communication system, and in Leung 653, channels such as F-SCHs and F-FCHs are used for transmitting broadcast services, as well. According to the cdma2000 standard, channels such as F-SCHs and F-FCHs are born on a same frequency. That is, original services and broadcast services are born on the same frequency in Leung 653. Moreover, Leung 653 does not teach or suggest that the HSBS broadcast service occupies downlink special carrier frequencies, which are not used by other kinds of services, such as original services.

In claim 3, though the broadcast service hierarchy is divided into cells, all the cells of the broadcast service hierarchy employ a same downlink special carrier

frequency. Leung 653, on the other hand, at best discloses that a single HSBS channel is provided on different frequencies to serve subscribers in those frequencies (see Leung 653, [0050]).

In claim 3, the same content of the real-time broadcast services are transmitted in each cell of the broadcast service hierarchy, and adjacent cells of the broadcast service hierarchy employ different scrambling codes. Moreover, since the same content of the real-time broadcast services are transmitted in each cell of the broadcast service hierarchy, it is not needed for claim 3 to consider how to avoid RF interference in different cells for the real-time broadcast services. Since different cells use different scrambling codes in the broadcast service hierarchy, when a user terminal resides in the broadcast service hierarchy, it can still know which cell it moves to according to the scrambling code of the cell, and register its area information in the mobile communication system. Then, the system can transfer page information of original services to the user terminal in the broadcast service hierarchy. This decreases the complexity of the user (i.e., there is no need to set two receivers in a user terminal).

Nakagawa appears to disclose that the same broadcasting program signals for the wide area broadcasting are transmitted based on the OFDM modulation method, and different broadcasting program signals for each local area broadcasting are transmitted based on the SS modulation method by using a different spreading code (see Nakagawa, col. 6, lines 15-31). In Nakagawa, the spreading code is set to be 1 (PN=1) inside the upper dash frame (see Nakagawa, Fig. 7) for the wide area broadcasting. That is, for wide area broadcasting program signals, there is no need to

use scrambling code, and different broadcasting program signals are transmitted in different cells by using different scrambling codes in Nakagawa. From Nakagawa, we can not see that different cells use different scramble codes, even if they transmit same broadcasting program.

In claim 3, since there are two hierarchies, i.e., the broadcast service hierarchy and the original service hierarchy, using completely different frequencies, mobile terminals need to switch between the hierarchies for receiving corresponding services. Leung 653, on the other hand, discloses that the BS broadcasts the content without encryption and interested mobiles can receive the content (see Leung 653, [0060]). However, Leung 653 does not teach or suggest that “interested mobiles” switch between the broadcast service hierarchy and the original service hierarchy. Leung 653 at best discloses performing soft handoff by mobile terminals. It is well known to those skilled in the art that soft handoff refers to receiving multiple transmissions from multiple base stations when the mobile terminal moves from one area to another area (see Leung 653, [0043]). That is, soft handoff mentioned in Leung 653 does not teach or suggest switching between hierarchies in claim 3.

Claim 3 discloses adding a broadcast service hierarchy into the radio access network, in order to provide a real-time broadcast service in a mobile communication system. The broadcast service hierarchy has been assigned downlink special broadcast resources for broadcasting real-time broadcast services, wherein the downlink special broadcast resources downlink special carrier frequencies. The broadcast service hierarchy is divided into cells, and the adjacent cells employ different

scrambling codes. Since the original service hierarchy and the broadcast service hierarchy employ different frequencies for transmitting different services, the mobile terminals need to switch between these two hierarchies.

Even if Leung 653, Nakagawa and Leung 044 are combined, the broadcast service hierarchy disclosed in claim 3 could not be obtained. The hierarchy includes frequency allocation for original services and broadcast services, cell division for original services and broadcast services, and frequency and scrambling code assignment for cells of broadcast services, etc. This combination fails to teach or suggest a method for providing real-time broadcast services in a mobile communication system with the help of the broadcast service hierarchy could not be obtained, either.

In claim 14, downlink special scrambling codes are assigned for transmitting real-time broadcast services. The claimed pilot channel of the cells in the original service hierarchy is shared indicates that broadcast services and original services are born on the same carrier frequency. That is, claim 14 addresses a scheme of using different scrambling codes to distinguish the broadcast services from the original services in the same carrier frequency.

Leung 653, on the other hand, at best discloses that the Broadcast channel refers to a single forward link physical channel, i.e., a given Walsh Code that carries broadcast traffic (see Leung 653, [0049]). That is, Leung 653 at best discloses that different Walsh codes are used to distinguish broadcast services from original services. It is well known to those skilled in the art that “scrambling code” and “Walsh code” are totally different. In the downlink, Walsh code is a kind of channelization code for

differentiating terminals on physical channels, while scrambling code is for differentiating base stations. Therefore, Leung 653 does not teach or suggest claim 14.

Moreover, in Nakagawa, the “wide area broadcast” is distinguished from the “local area broadcast” by different frequency bands (see Nakagawa, Fig. 4). Comparing with “wide area broadcast” and “local area broadcast” in Nakagawa, broadcast services and original services in claim 14 are distinguished by scrambling codes. That is, Nakagawa does not teach or suggest using different scrambling codes to distinguish the broadcast services from the original services in the same carrier frequency as claim 14 does.

In claim 14, the downlink special scrambling code is employed in every cell for broadcast services. The downlink special scrambling code used in the broadcast service hierarchy is particular for data transmissions of real-time broadcast services, and not for original services.

Leung 653 at best discloses that the channel structure for the HSBS broadcast service is consistent with the cdma2000 standard, wherein the Forward Supplemental Channel (F-SCH) supports data transmissions (see Leung 653, [0053]). That is, in Leung 653, broadcast channels in different cells use different scrambling codes, and a broadcast channel uses a same scrambling code with other channels for transmitting original services within a cell, while in claim 14, we use different scramble codes to distinguish broadcast service with original services in one cell.

Even if Leung 653 and Nakagawa are taken into account in combination, the broadcast service hierarchy disclosed in claim 14 could not be obtained. Here, the

hierarchy includes scrambling code allocation for original services and broadcast services, cell structure of original services and broadcast services, and scrambling code assignment for cells of broadcast services. Therefore, a method for providing real-time broadcast services in a mobile communication system with the help of the broadcast service hierarchy could not be obtained.

In view of the foregoing, Applicant respectfully submits that claims 3-20 define over the art cited by the Examiner. Thus, Applicant respectfully requests withdrawal of the rejections.

#### **CONCLUSION**

In view of the above amendment, applicant believes the pending application is in condition for allowance. It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-0750, under Order No. 9896-000042/US/NP from which the undersigned is authorized to draw.

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Respectfully submitted,

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